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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/990,160

11/20/2001

Tzong-Dar Her

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2361

7590

10/22/2003

J.C. Patents, Inc.
4 Venture, Suite 250
Irvine, CA 92618

EXAMINER

LUU, CHUONG A

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/990,160

Applicant(s)

HER ET AL.

Examiner

Chuong A Luu

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

PRIOR ART REJECTIONS

Statutory Basis

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Rejections

Claims 1, 5-6 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Akram et al. (U.S. 5,994,166).

Akram discloses a method of constructing stacked packages with

(1); (12) a substrate (116);

at least a chip set having a plurality of chips (128) formed side by side with each other, wherein the chips are adhered on the substrate (116) and are electrically

Art Unit: 2825

connected to the substrate (116), a plurality of circuits (160, 158 and 154) which are located on the substrate not within the substrate, are located between the chips (128) and electrically connect (138) the chips to each other (see column 6, lines 37-54.

Figure 1);

a molding compound, encapsulating (170) a portion of the electrical connection between the chip set (128) and the substrate (116) (see Figure 1);

(5) wherein the chip set is electrically connected to the substrate by a flip-chip technology, and the molding compound fills into a gap located between the chip set and the substrate (see Figure 1);

(6) wherein the chip set is electrically connected to the substrate by a plurality of conductive wires, and the molding compound encapsulates the chip set and the conductive wires (see Figure 1);

(13) wherein the chip set is electrically connected to the substrate by a flip-chip technology, and the molding compound fills into a gap located between the chip set and the substrate (see Figure 1);

(14) wherein the chip set is electrically connected to substrate by a plurality of conductive wires, and the molding compound encapsulates the chip set and the conductive wires (see Figure 1);

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al. (U.S. 5,994,166) in view of Higgins, III (U.S. 6,064,114).

Akram teaches everything above except for wherein the substrate comprises; a plurality of patterned-trace layers; and at least an insulating layer located in between the patterned-trace layers, wherein a plurality of vias are formed in the insulating layer and electrically connect the patterned-trace layers to each other; wherein the insulating layer is made of a material selected from a group consisting of glass epoxy resin (FR-4, FR-5), bismaleimide-triazine (BT), epoxy resin or polyimide; wherein the line-patterned layers are formed by defining copper foil using photolithography.

However, Higgins, III discloses a semiconductor device with **(2)** wherein the substrate comprises; a plurality of patterned-trace layers; and at least an insulating layer located in between the patterned-trace layers, wherein a plurality of vias are formed in the insulating layer and electrically connect the patterned-trace layers to each other (see Figures 1-2); **(3)** wherein the insulating layer is made of a material selected from a group consisting of polyimide (see column 3, lines 16-27); **(4)** wherein the line-patterned layers are formed by defining copper foil using photolithography. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine the above teachings to fabricate a semiconductor device to exceed its performance criteria.

Claims 7-11 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al. (U.S. 5,994,166).

Akram discloses the claimed invention except for wherein the chip set comprises a total number of chips in the DCA memory module. It would have been an obvious

Art Unit: 2825

matter of design choice to select the total number of chips in a set during fabrication a semiconductor structure to exceed its performance criteria, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955) and Nerwzn v. Erlichman, 168 USPQ 177, 179.

Response to Arguments

Applicant's arguments filed on August 4, 2003 have been fully considered but they are not persuasive.

Applicant argues that Akram fails to disclose the chips set of the present invention as recited in claims 1 and 12. However, Akram discloses a method of constructing stacked packages with wherein the chips are adhered on the substrate, a plurality of circuits (160, 158 and 154) which are located on the substrate not within the substrate within the substrate, and are electrically connected to the substrate (see column 6, lines 37-54. Figure 1).

In view of the foregoing, it is believed that the rejections of claims 1-19 under 35 USC 102 and 103 are proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2825

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A Luu whose telephone number is (703)305-0129. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (703)308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9306 for regular communications and (703)872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

CAL
October 20, 2003


VUTHE SIEK
PRIMARY EXAMINER